

# Ceramic Textiles and Composites

## 3M™ Nextel™ 312 Woven Fabrics

Nextel™ 312 Fabrics are woven from strong continuous Nextel 312 Alumina-Boria-Silica fibers.

Nextel 312 Fabrics retain strength and flexibility with little shrinkage at continuous temperatures of up to 2012°F (1100°C).

### Typical Applications

- Furnace curtains and zone dividers
- Furnace and duct linings
- Structural reinforcement
- Flexible seals and gaskets
- Sewn refractory parts and shapes
- Flexible thermal barriers
- Composite fire barriers
- Micrometeorite debris shields



### Typical Properties:

Style	Weight (Sized)	Available Width	Thickness (Sized)	Thread Count		Yarn Type	Air Permeability w/o Sizing	Weave	Breaking Strength without Sizing	
				Warp	Fill				Warp	Fill
	oz/yd <sup>2</sup> (g/m <sup>2</sup> )	inch (m)	inch (mm)	per inch (cm)	per inch (cm)		ft <sup>3</sup> /min/ft <sup>2</sup> (l/min/dm <sup>2</sup> )		lb/inch (kg/cm)	lb/inch (kg/cm)
AF-10	8.6 (292)	38 (0,97)	0.015 (0.38)	46 (18)	46 (18)	600d served roving	15 (46)	5 harness satin	115 (20)	140 (25)
AF-11	7.6 (258)	38 (0,97)	0.010 (0.25)	24 (9)	23 (9)	1200d roving	40 (122)	Plain	120 (21)	135 (24)
AF-12	8.1 (275)	58 (1,47)	0.013 (0.33)	25 (10)	25 (10)	1200d roving	15 (46)	5 harness satin	130 (23)	150 (27)
AF-14	9.0 (305)	38 (0,97)	0.014 (0.36)	20 (8)	17 (7)	900d 1/2	30 (91)	Plain	150 (27)	135 (24)
AF-20	13.4 (454)	36 (0,91)	0.020 (0.51)	30 (12)	26 (10)	1800d roving	15 (46)	5 harness satin	170 (30)	150 (27)
AF-30	17.6 (597)	36 (0,91)	0.030 (0.76)	19 (7)	18 (7)	1800d 1/2	50 (152)	Crow foot satin	200 (36)	180 (32)
AF-40	24.0 (814)	36 (0,91)	0.037 (0.94)	32 (13)	20 (8)	1800d 1/2	35 (107)	5 harness satin	300 (54)	190 (34)
AF-62	29.5 (1000)	4, 12, 30 (0,10; 0,30; 0,76)	0.054 (1.37)	40 (16)	20 (8)	1800d 1/2	100 (305)	Plain double layer	260 (46)	190 (34)

## Fiber Properties:

Composition – Alumina-Boria-Silica

Density (non-porous) –  
0.0975 lb/in<sup>3</sup> (2.70 gm/cc)

Tensile Strength –  
250 x 10<sup>3</sup> psi (1720 mN/m<sup>2</sup>)

Continuous Use Temperature -  
2012°F (1100°C)

Short Term Use Temperature -  
2600°F (1426°C)

Melt Temperature –  
3272°F (1800°C)

Other Characteristics – Non-oxidizing,  
non-hygroscopic, essentially chemically  
resistant, low thermal conductivity,  
good abrasion, fire and flame resistance.

## Important Processing Information

3M™ Nextel™ 312 Ceramic  
Fibers are coated during  
manufacture with sizings or  
finishes which serve as aids in  
textile processing. These sizings  
or finishes consist of organic  
polymers which may ignite  
and/or decompose to hazardous  
byproducts or process  
contaminants when first heated.

If Nextel 312 ceramic fibers are  
to be subjected to hot, humid  
environments for extended  
periods of time (e.g. 95°C,  
100% relative humidity for ten  
days), heat treatment is  
necessary. The heat treatment  
changes the crystal structure of  
the fiber, preventing physical  
degradation in these conditions.

Heat cleaning is available to  
meet your safety or process  
requirements. See our “Nextel  
312 Heat Cleaning/Heat  
Treating Instructions” and  
Health Safety Bulletin for more  
information.

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## IMPORTANT NOTICE TO PURCHASER

All statements, technical information, and recommendations contained in this brochure are based on tests conducted with 3M approved equipment, and are believed to be reliable. However, the accuracy or completeness of the tests is not guaranteed. THE FOLLOWING IS MADE IN LIEU OF ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE: The seller's and manufacturer's only obligation will be to replace the quantity of the product proved to be defective. Neither the seller nor 3M will be liable for any injury, loss or damage, direct or consequential, arising out of the use of or the inability to use the product. Before using, the user must determine the suitability of the product for his or her intended use.



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